REMARKS

Claims 1, 3, 4 and 6-17 were previously pending in this application, with claims 1 and 10 in independent form. Claims 2 and 5 have been previously canceled without prejudice or disclaimer. Applicants respectfully request reconsideration of the above-identified application, in view of the following remarks.

Claim Rejection under 35 U.S.C. § 103

The Examiner has maintained the previous rejection of claims 1, 3, 4 and 6-17 under 35 U.S.C. 103(a), as allegedly being anticipated by Regazzoni, et al. US Patent No. 4,997,622, as well as by Faure, et al. US Patent No. 5,073,207. Applicants respectfully submit that pending independent claims 1 and 10, as well as the claims that are directly or indirectly dependent therefrom, are patentably distinct from the cited references.

Amended independent claim 1 recites, *inter alia*:

> A heat-resistant magnesium alloy...consisting essentially of...calcium...aluminum...[and] manganese and [having] a mass ratio of the Ca amount with respect to the Al amount, Ca/Al by mass, being 1 or more.

The Advisory Action indicates that "When applicant contends that modifying components in the reference composition are excluded by the recitation of 'consisting essentially of' applicant has the burden of showing the basic and novel characteristics of his/her composition – i.e., a showing that the introduction of these components would materially change the characteristics of applicants composition." (See, Advisory Action, page 2). Applicants

respectfully submit that the basic novel characteristics of the claimed composition are discussed throughout the specification.

Applicants submit that the claimed Calcium (Ca) to Aluminum (Al) ratio has several benefits that are further enhanced by incorporating manganese as part of the claimed composition. By way of example, pages 6-9 of the specification discuss benefits of implementing Ca and Al percentages by mass individually, as well as the benefits of implementing certain ratios of Ca to Al by mass percentage, both of which significantly influence the composition's characteristics. For example, as discussed on pages 6 and 7 of the specification, controlling the mass percentages of the elements individually facilitates manipulating both the solidus and liquidus temperatures associated with the composition.

Moreover, the specification provides explicit support for implementing the claimed Ca/Al ratios of "1 or more" stating, "[that] when the content of Al increases too much with respect to the content of CA [i.e., Ca/Al ratios < 1, as in the cited references]...it results in lowering the heat resistance of [the] magnesium alloys." (See, specification, page 8, ¶[0018]). Further, the specification states, "when the content of Al is more than the content of Ca, it is not possible to sufficiently inhibit the $Mg_{17}Al_{12}$ from precipitating so that the creep resistance of magnesium alloys is lowered..." (See, specification, page 9, ¶[0020]). This is further evidenced in the discussion of test samples Nos. 1 through 7 which, "[as] the Ca content was [increased] with respect to the Al content...[the] Test Samples Nos. 1 through 7 exhibited a narrower

solidification temperature width and simultaneously showed a finer structural roughness." (See, specification, page 9, ¶[0043]).

Similarly, the specification provides explicit support for implementing manganese (Mn) as part of the alloy, stating, "Mn reacts with Al as well to inhibit $Mg_{17}Al_{12}$, one of the causes of lowering the creep strength or creep resistance, from precipitating and simultaneously form thermally stable intermetallic compounds." (See, specification, page 9, ¶[0023]). However, just as the specific percentages of Ca and Al are incorporated into the claimed composition, Mn is incorporated within a very specific range by mass percentage. For example, ¶ [0023] of the specification also discusses incorporating Mn to improve both the room-temperature strength, as well as the high-temperature strength of the alloy. These benefits are most profound and cost efficient when the mass percentage is in the claimed range of 0.1-1% by mass. (See, specification, ¶[0023]).

Moreover, Applicants submit that the cited references do not teach or suggest a magnesium alloy consisting essentially of calcium, aluminum and manganese having a calcium/aluminum (Ca/Al) mass ratio being 1 or more, as recited in independent claim 1. In fact it appears as though the cited references teach away from the claimed Ca/Al ratio. As previously discussed, none of Faure, et al.'s tests 1-5, disclose, teach or suggest an alloy consisting essentially of Ca, Al, and Mn, with a Ca/Al mass ratio greater than or equal to 1. (See, Faure, et al. Table 1, Col. 4). Similarly, Applicants submit that the trials disclosed in Regazzoni, Col. 6,

Table I, only two alloys include Mn and these alloys both have Ca/Al mass ratios that are respectively, less than 1 (See, Regazzoni, et al., Col. 6, Table I).

Therefore, in light of the specification's discussion of the basic and novel characteristics of the claimed invention, as well as the teachings of both Faure, et al. and Regazzoni, et al. teaching Ca/Al ratios < 1, Applicants submit that independent claims 1 and 10 are patentably distinct from the cited references. Further, Applicants respectfully submit that for at least a similar reason independent claim 10, as well as, claims 3, 4-9, and 11-17, which are directly or indirectly dependent on independent claims 1 and 10 respectively, are also patentably distinct from the cited references. Therefore, Applicants respectfully request withdrawal of these grounds of rejections.

CONCLUSION

It is now believed that all pending claims are in condition for allowance. In view of these remarks, an early and favorable reconsideration is respectfully requested.

Respectfully submitted,

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